Initial Study/Mitigated Negative Declaration

Division of Oil, Gas, and Geothermal Resources

PROJECT TITLE
Class II Water Disposal Project and Aquifer Exemption – South Belridge Field

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PROJECT DESCRIPTIONS AND LOCATIONS

Aera Energy LLC (Aera) is proposing the establishment of a modified aquifer exemption for the Tulare aquifer in the area of the South Belridge oilfield and the adoption of a Class II disposal project authorizing the installation of up to 30 wells over a five year period injecting up to 150,000 barrels of water per day. Installation of an eight well pressure and water quality monitoring project is also specified as a mitigation measure for this project but will be permitted under the Kern County Environmental Health permitting program. The area that DOGGR is proposing to exempt is currently an underground source of drinking water (USDW) and described as follows:

1) the Tulare (Mid PAA and Below) zone to the base of the Tulare zone geologic strata (the zone) which occur at this location within the subsurface interval ranging approximately 800 feet to 1,550 feet below ground surface (bgs); and

2) laterally within the following sections of Township 28 South, Range 21 East, Kern County, California: Sections 7 (NE ¼), 8, 9, 14, 15, 16, 17, 20 (NE ¼), 21 (North ½), 22, 23, 26, 27 (East ½), 35 (North ½).

The USEPA initially received the aquifer exemption application and forwarded a copy to the DOGGR for joint review and processing. In coordination with EPA, the agencies have determined that the zone meets the criteria for aquifer exemption pursuant to 40 CFR §146.4: The zone does not currently serve as a source of drinking water and will not in the future serve as a source of drinking water because: the total dissolved solids content of the water within the zone is more

than 3,000 milligrams per liter (mg/l) and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.

The proposed injection project site is comprised of the S½ Section 17; the NE¼ of Section 20; the N½ of Section 21, the SW¼ of Section 22 and the W½ of Section 27; Township 28 South, Range 21 East MD B&M – USGS 7.5 minute Lost Hills quadrangle map). The surface locations of the proposed injection project wells are on lands owned by Aera and are served by numerous, existing oilfield roads.

The terms "project site" and "project area" are used within this document. The term "project site" is used to define the proposed area of disturbance such as the possible injection well sites, any new access road, etc.; and the term "project area" includes the subsurface aquifer exemption boundary and the surface area surrounding the proposed project site.

INJECTION PROJECT:

Site preparation activities for the 30 potential injection well locations will include clearing, grading, and compaction of the site. Once the proposed project site has been cleared, it will be graded, watered and compacted to establish a level and solid foundation for the drilling rig. No surface disturbance is associated with the aquifer exemption as it affects only the designation of the groundwater.

The overall working pad needed during drilling operations to accommodate a typical Tulare disposal well drilling rig and accompanying temporary facilities is approximately 150 feet by 85 feet in size (12,750 sq. ft.) including the reserve pit. The reserve pit will either be constructed by mechanical compaction or lined with a polyethylene liner to prevent percolation. Compaction of the surface, combined with the deposition of bentonite drilling mud during drilling operations, will give the pit a bentonite seal with a maximum permeability of approximately 10-6 cm/sec.

Completing the site preparation process will require approximately 3 days per well. Water may be applied to access roads and the proposed project site to facilitate movement of heavy equipment and to control dust.

Following site preparation, the drilling rig will be mobilized and rigged up. Typically, this process is completed in a single day. Temporary facilities, equipment and materials necessary for the drilling operation will be set up and stored on site (i.e., drilling mud supplies, water, drilling materials and casing, crew support trailers, pumps and piping, portable generators, fuels and lubricants, etc.). All hazardous materials such as diesel fuel will be stored according to applicable federal, state and local regulations and the disposal of fluids will follow Regional Water Quality Control Board (RWQCB) regulations.

Surface casing will be set, cemented, and blowout prevention equipment installed at the wellhead and tested. Well casing is designed to protect shallow water zones. Anchor blowout prevention equipment (surface and sub-surface safety devices) will be regulated by DOGGR. DOGGR engineers will be notified for required tests and other operations. Sufficient weighted drilling fluid will be used to prevent any uncontrolled flow from the well and additional quantities of drilling

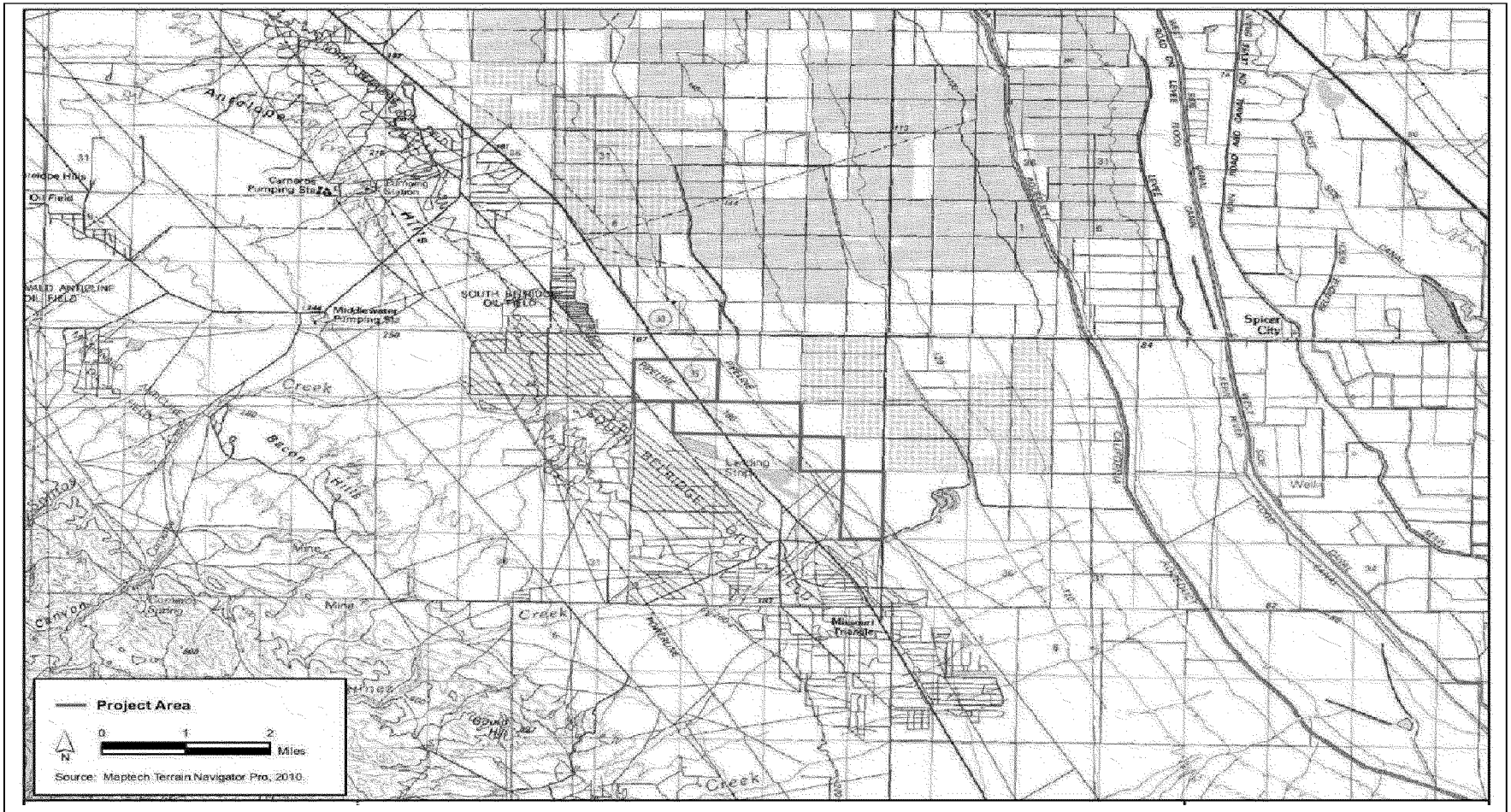


Figure 1
Vicinity Map

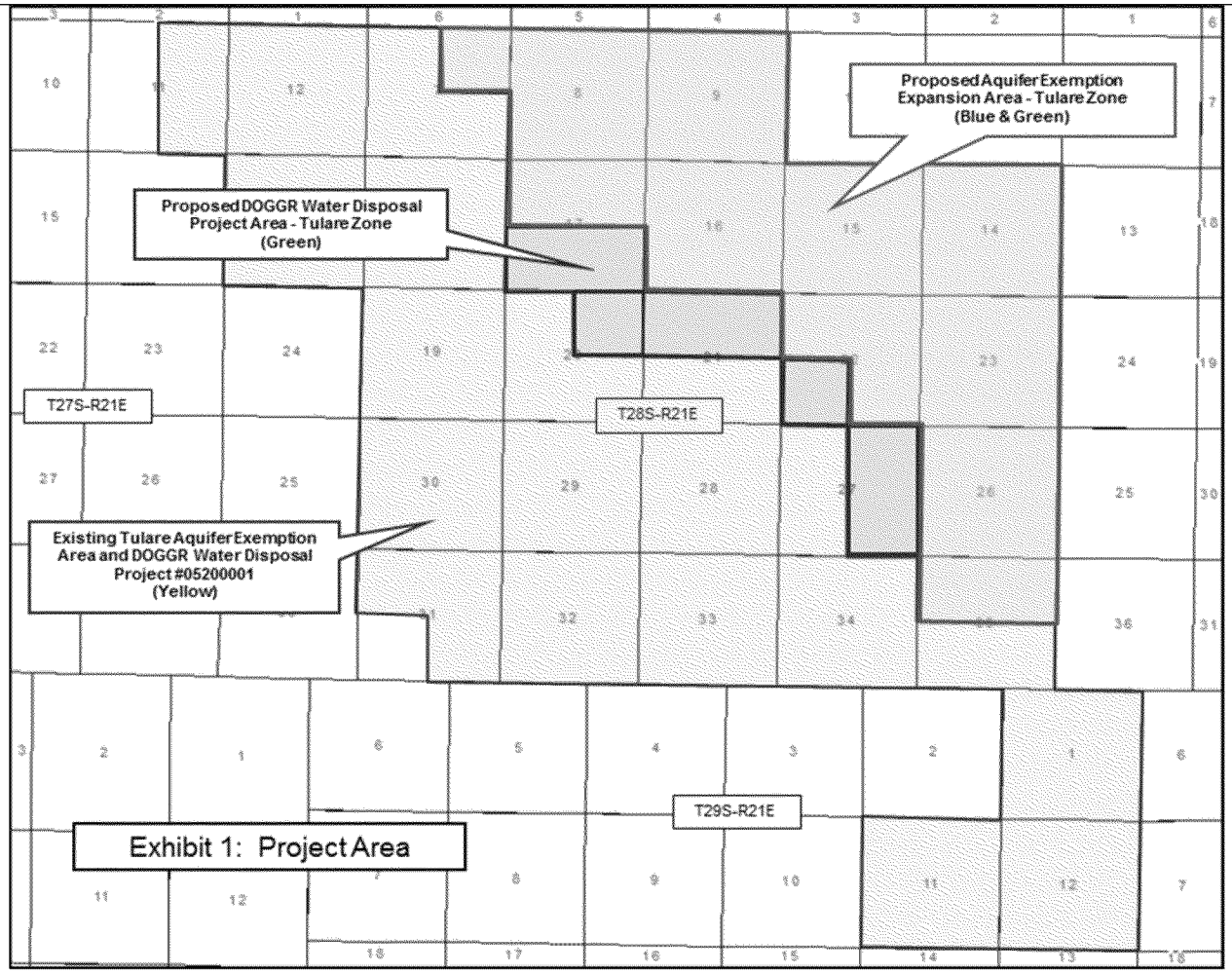


Figure 2
Location Map

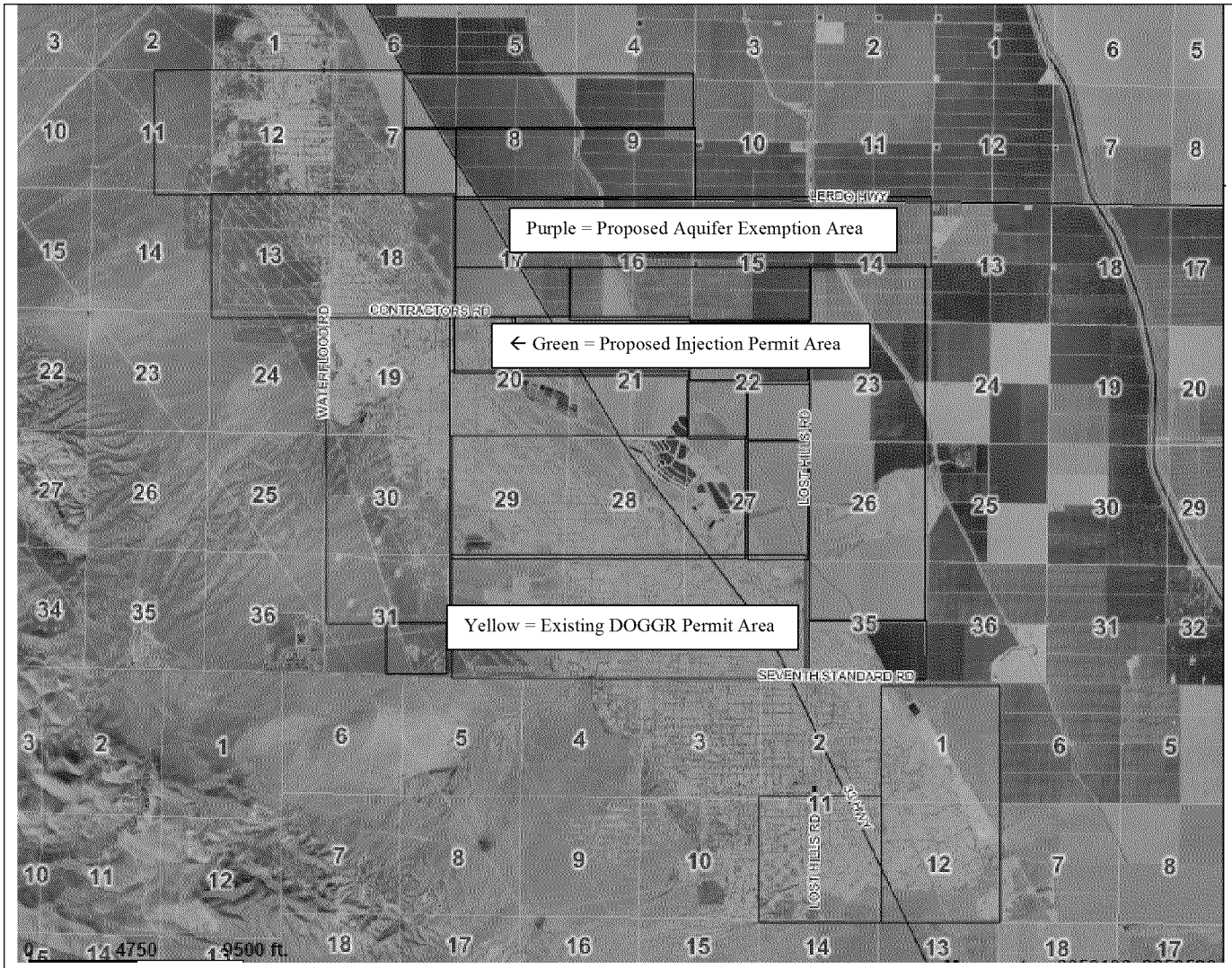


Figure 3
Aerial Photograph

fluid will be available at the drill site. Drilling will continue until the target injection depth is reached. Equipment, personnel, and supply deliveries will continue through the course of the drilling program. Aera estimates that approximately 15 days will be required for drilling and completing a typical injection well.

Although the proposed area of disturbance (~8.8 acres for all 30 wells) exceeds 1 acre, there are no federal or state receiving waters in the project area. Accordingly, no coverage under the General Permit to Discharge Storm Water with Construction Activity (WQ Order No. 99-08-DWQ) is required.

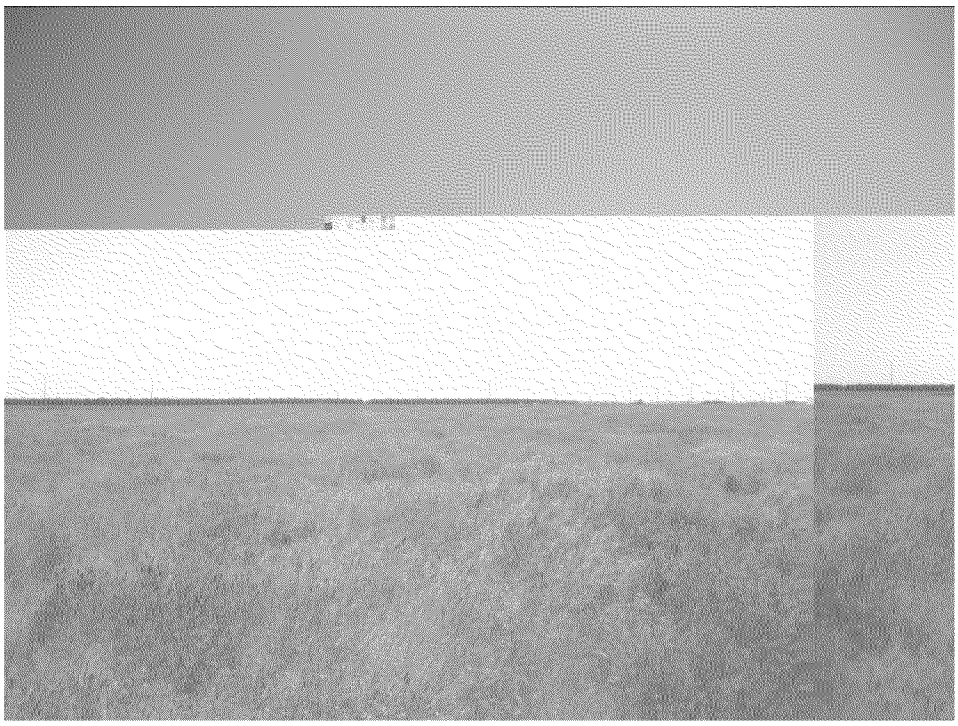
Photographs representative of the proposed injection project areas are attached.

Photograph 1
View looking east from stream channel.

Photograph 2
View looking south from Contractors Road.

Photograph 3
View looking southwest from northern edge of grassland habitat.

Photograph 4
View looking north from Contractor's Road.



Photograph 5
View looking east from northern portion of proposed project site.

Photograph 6
View looking north from near the center of the proposed project site.

AQUIFER EXEMPTION:

The zone that DOGGR is proposing to exempt is currently an underground source of drinking water (USDW) and described as follows: 1) the Tulare (Mid PAA and Below) zone to the base of the Tulare zone geologic strata (the zone) which occur at this location within the subsurface interval ranging approximately 800 feet to 1,550 feet below ground surface (bgs); and 2) laterally within the following sections of Township 28 South, Range 21 East, Kern County, California: Sections 7 (NE ¼), 8, 9, 14, 15, 16, 17, 20 (NE ¼), 21 (North ½), 22, 23, 26, 27 (East ½), 35 (North ½). The entire aquifer exemption area plus a one mile buffer to the east is located on property owned by Aera or property in which Aera owns all pore spaces and all pore space rights below a depth of thirty (30) feet below the surface along with the right to use such pore space for the storage or disposal of oil field brines. No surface disturbances are anticipated as a consequence of the aquifer exemption process. Potential environmental impacts are limited to hydrogeological effects and are evaluated in Section IX of the Initial Study.

GENERAL PLAN DESIGNATION:

The proposed project site is located on lands designated in the Kern County General Plan as Intensive Agriculture - minimum 20-acre parcel size (8.1), Mineral and Petroleum - minimum 5-acre parcel size (8.4) and Flood Hazard (2.5). The proposed project is consistent with the Kern County Land Use, Open Space and Conservation Element of the Kern County General Plan.

ZONING

The project is consistent with the Exclusive Agriculture (A) and Limited Agriculture (A-1) zoning designation per Kern County, California Municipal Code Chapters 19.12.020 and 19.98.020.

ENVIRONMENTAL ANALYSIS
Aera Aquifer Exemption and Class II Disposal Project

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
I. AESTHETICS				
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	_____	_____	_____	X
b. Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	_____	_____	_____	X
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	_____	_____	_____	X
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	_____	_____	X	_____

Discussion: The proposed project sites consist primarily of undeveloped lands immediately east of, and adjacent to the South Belridge Oil Field properties operated by Aera. There are no nearby scenic vistas. The proposed project sites are flat, and provide views of agricultural fields to the east, the South Belridge Oil field to the west, with similar vistas to the north and south. Local and state roads are visible from the proposed project sites. No scenic roadways are located adjacent to the proposed project sites. No significant scenic resources are located at or near the proposed project sites. The project is consistent with land use and zoning designation for the area, and is therefore considered consistent with the associated visual resource for planning purposes and General Plan requirements.

Ia. Implementation of the proposed project would involve the construction of up to 30 well sites and the drilling and completion of the injection wells. These activities would be conducted immediately to the east of an extensively developed oil field. Proposed project sites are more than 1.3 miles from any residential structures. A drill rig, tanks, and other equipment would be located on each well site during the project. Oil and gas exploration and production equipment and farm buildings, water tanks, and other agricultural facilities related to agricultural activities are present within the vicinity of the proposed project sites. Many of these oil field and agricultural facilities are similar in shape and size to the proposed project equipment. The equipment proposed for use on the proposed project sites is similar in visual character to existing facilities located throughout the proposed project area. Therefore, the proposed project is not expected to have an adverse effect on scenic vistas.

Ib. The proposed project sites are not located adjacent to a state scenic highway. Therefore, the proposed project will not damage the scenic resources within a state scenic highway.

Ic. A water disposal injection well and associated piping will only slightly change the existing quality and visual character at the proposed project sites by initially introducing a tall structure at each well site during drilling and later being completed with a low profile wellhead and associated piping. The project does not conflict with any applicable vista protection standards, scenic resource protection requirements or design criteria of federal, state or local agencies, and is consistent with the Kern County Zoning Plan and General Plan designations for the project area. Therefore, neither the temporary drilling structure nor the injection wells will change the existing visual quality and character of the project area.

Id. Night lighting may be required during drilling operations but not during injection well operations. Night lighting supporting the drilling rig will be directed inward and downward to minimize potential offsite impacts. As observed on May 2 and 3, 2011 the nearest residence is located approximately 1.3 miles (6,830 feet) north-northeast of the proposed Section 21 disposal project site. This residence won't likely be impacted by the temporary presence of night lighting during the drilling phase. Additionally, the drilling phase for each of the proposed wells is short (less than 4 days) and temporary in nature. Therefore, the proposed project would not adversely affect day or nighttime views in the area.

Conclusion: As visual impacts associated with night lighting during drilling activities would be short term and temporary, the impacts would be less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
II. AGRICULTURAL AND FOREST RESOURCES *Would the project:*				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	_____	_____	X	_____
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	_____	_____	_____	X
c. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use, or conversion of forestland to non-forest use?	_____	_____	_____	X
d. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526)?	_____	_____	_____	X
e. Result in the loss of forest land or conversion of forest land to non-forest use?	_____	_____	_____	X

Discussion: The proposed project sites consist primarily of undeveloped oil field lands (base zoning Ag–I). The project is consistent with land use and zoning designation for the area. The project is located in agricultural cropland identified in the General Plan as General Agriculture.

IIa. If all 30 disposal wells are drilled and completed in the farmed area of the Project boundary, the project will potentially convert approximately 9.0 acres of Prime Farmland to non-agricultural use. Based on the information presented in the Kern

County Important Farmland 2008, Rural Land Edition, Sheet 1 of 3, approximately 626,217 acres of Prime Farmland are present within Kern County. Accordingly, the proposed project sites will impact less than 0.001 % of these agricultural lands.

IIb. No agricultural cropland classified as the Williamson Act Farmland Security Zone Property will be impacted.

IIc. See to IIa and IIb.

IId. There are no forest lands within the proposed project sites. Therefore, no impacts are expected.

IIe. There are no forest lands within the proposed project sites. Therefore, no impacts are expected.

Conclusion: As the proposed use is considered compatible with applicable General Plan policies and zoning designations, impacts are considered to be less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
III. AIR QUALITY				
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	_____	_____	X	_____
b. Violate any air quality standard or contribute to an existing or projected air quality violation?	_____	_____	X	_____
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors?	_____	_____	X	_____
d. Expose sensitive receptors to substantial pollutant concentrations?	_____	_____	_____	X
e. Create objectionable odors affecting a substantial number of people?	_____	_____	_____	X

Discussion: The project site lies within the southern portion of the San Joaquin Valley Air Basin (SJVAB), which is the second largest air basin in the state. The SJVAB encompasses eight counties, and is divided into three regions; San Joaquin, Stanislaus, and Merced Counties in the Northern Region; Madera, Fresno, and Kings Counties in the Central Region; and Tulare County and the Valley portion of Kern County in the Southern Region. The SJVAB is managed by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and is defined by the Sierra Nevada Mountains in the east, the Coast Ranges in the west, and the Tehachapi Mountains in the south. The San Joaquin Valley opens to the Pacific Ocean at the Carquinez Straits, where the San Joaquin-Sacramento Delta empties into the San Francisco Bay. Although marine air generally flows into the basin from the San Joaquin River Delta, the region's topographic features restrict air movement through and out of the basin. The SJVAPCD is the primary local agency responsible for protecting human health and property from the harmful effects of air pollution for Kern County.

The California Clean Air Act (CCAA), adopted in 1988, requires all air pollution control districts and air quality management districts in the state to adopt and enforce regulations to achieve and maintain air quality that is within the State air quality standards. Kern County is in

non-attainment for the State Ambient Air Quality Standards for ozone and inhalable particulate matter (PM_{10}). The County is in attainment for the federal 8-hour ozone standard and has adopted a 2007 Federal Maintenance Plan for maintaining this designation.

Pursuant to the CCAA, the SJVAPCD prepared a Clean Air Plan (CAP) in 2007 showing how the State ozone standard would be met with subsequent updates every three (3) years.

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by state and federal law. These regulated air pollutants are known as "criteria air pollutants" and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_X), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. VOC and NO_X go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants. Other pollutants, such as carbon dioxide (CO_2), a natural by-product of animal respiration that is also produced in the combustion process, have been linked to such phenomena as global climate change. These emissions are unregulated and there are no thresholds for their release. These pollutants do not jeopardize the attainment status of the SJVAB. A discussion of CO_2 and greenhouse gases is included in Section VII, Greenhouse Gas Emissions.

The public's exposure to toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal Clean Air Act (42 USC Sec. 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through California Air Resources Board (CARB), is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

Since the last update to the TAC list in December 1999, CARB has designated 244 compounds as TACs. Additionally, the CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the

estimated health risks from TACs can be attributed to a relatively few compounds, one of the most important in California being particulate matter from diesel-fueled engines. In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in the diesel exhaust were considered as TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. The SJVAPCD defines sensitive receptors as locations where there are human populations and where there is a reasonable expectation of continuous human exposure according to the averaging period for the Ambient Air Quality Standards (AAQS). The most sensitive portions of the population are children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. The closest sensitive receptors to the project site are approximately 1.3 miles away. The project will not create objectionable odors that would affect a substantial number of people.

The SJVAPCD has established Thresholds of Significance: Criteria for Determining Environmental Significance. These thresholds separate a project's short-term emissions from its long-term emissions. Short-term emissions are mainly related to the construction phase of the project and are recognized to be short in duration. Long-term emissions are primarily related to activities that will occur indefinitely as a result of project operations. For the purposes of water injection wells, air quality impacts are considered short-term as no air pollutant emissions are associated with their long-term operation.

As a result of implementation of project design elements, compliance with local Air Pollution Control District permit requirements, and implementation of the identified minimization and avoidance measures, project related impacts on air quality will be reduced to less than significant.

IIIa. The SJVAPCD has prepared an Air Quality Attainment Plan to enable the San Joaquin Valley to attain air quality standards by the earliest practicable date. Short-term emission impact is anticipated as part of the proposed project, but with measures included in the project it will be a less than significant impact. Particulate matter emissions can be expected to occur during the construction of each drill pad and from daily ingress and egress of vehicles on existing and proposed unpaved access roads. This project will exceed the non-residential project limit of 5.0 or more acres but will not move, deposit, or relocate more than 2,500 cubic yards per day of bulk materials on at least three days. Therefore, a Dust Control Plan will not be required as specified in Section 6.3.1of Rule 8021. The operator will provide written notification to the SJVAPCD at least 48 hours prior to beginning earthmoving operations as required. Construction also will produce exhaust emissions with transport of workers and machinery to and from each site as well as operation of equipment on-site. Typical

equipment used for this project may include diesel drill rig motors, grader, loader, roller, heavy-duty trucks, pumps, generators, etc.

IIIb,c. Emissions were calculated to determine the quantity of criteria pollutants emitted by the proposed project. Criteria pollutant emissions were estimated using Road Construction Emissions Model, Version 6.3.2 software, which is recommended by the SJVAPCD for use in calculating air emissions for this type of project. Criteria pollutant emissions for the project were estimated based upon lists of equipment for each phase of the project provided by the project proponent. Equipment used for the project is summarized in Tables 3 and 4.

The following paragraphs summarize the short-term emissions associated with the proposed project. All activities associated with the proposed project are considered short-term with no long-term impacts to the environment.

Short-term emissions anticipated for this project are associated with the activities required to prepare each drill site for equipment placement and the drilling and completion activities for each water injection well. Each well is expected to take no more than 15 days for drilling and completion; no testing is required for an injection well. Although the maximum number of wells (30) has been determined, each well will be completed separate and apart from the others, so the information provided herein is based on a typically proposed well within the disposal project operating area. Minor differences between each well location may result due to mileage from main roads to each site and site configuration, but these differences are minimal and not considered significant. As such, the impacts presented herein are based on a typical, "per well" basis.

Preparation of each well site for drilling activities will generate air pollutant emissions from vehicles and heavy equipment operating up to 12 hours per day for some pieces of equipment. Site preparation for each site is expected to take no more than two (2) days and is expected to take less for some sites as the sites are already cleared and level. Fugitive dust and oxides of nitrogen (NO_x) emissions (as well as other criteria pollutants) would result from automobiles, trucks, back hoes, and other heavy equipment used to transport workers and drilling-related equipment.

Emissions from site preparation activities are expected to vary substantially from day to day; however, due to the short period of time, impacts are expected to be minimal. Many variables are factored into the calculation of site preparation emissions such as length of the work period, number of each type of equipment, site characteristics, area climate, and work personnel activities. In order to present the most conservative approach to estimating site preparation emissions from the project, all equipment was assumed to be in use 12 cumulative hours per day at full power. In reality, much of this equipment will be used significantly less than this due to idling time, operator

breaks, equipment breakdowns, etc. Dust emissions caused by site preparation activities can be significantly reduced and controlled provided recommended dust control measures are fully implemented.

Emissions from drilling operations includes off-road heavy equipment, work vehicles, drilling equipment, drilling mud production and storage equipment, logging and wire line equipment, and all associated employees operating up to 24 hours per day. As each well is expected to take only 15 days from start-up to completion, these associated emissions are considered short-term and will pose no long-term impacts to the air quality in the area.

After each well is drilled and completed, a low profile injection well-head assembly will be installed. No air pollution emissions would be generated during the operating phase of the proposed project.

Table 5 summarizes the tons per year of criteria pollutant emissions that could be produced during the construction of a single well site, and the drilling and completion of a single water injection well from the well site. Aera is proposing to drill a total of 30 injection wells during the proposed project. Aera would construct six (6) well sites per year, and drill a single water injection well from each well site for a total of six (6) water injection wells per year. Aera estimates that it will take five (5) years to complete the drilling of the 30 water injection wells. Table 6 summarizes the tons per year of criteria pollutant emissions that could be produced during the construction of six (6) well sites, and the drilling and completion of six (6) water injection wells from the well sites.

Table 3
Equipment Usage Site Preparation Phase for Each Well Site

Equipment Type and Number of Each	Days of Operation	Hours Operation Daily
Grader/ Front loader (1)	2	12
Backhoe (1)	2	12
Roller/Compactor (1)	2	12
Water Truck (1)	2	4
Passenger Car/Pickup Truck Roundtrips (6)	2	1 per vehicle trip
Dump Trucks	2	4
Heavy Truck/Semi (4)	2	4

Assumptions:
- Site preparation activities for each of the 30 well sites will take two (2) days to complete.
- Heavy Truck/Semi trips will occur during site preparation activities during the delivery and removal of construction equipment.
- Mileage for vehicle/truck/semi trips is based on round trip mileage to and from Contractor's Road, part of Aera's Belridge Producing Complex, to the project site.

Table 4
Equipment Usage Drilling Phase for Each Water Injection Well

Equipment Type and Number of Each	Days of Operation	Hours Operation Daily
Water Truck (1)	15	2
Drill Rig Motor (Internal Combustion Engine 500 horse power) (1)	15	24
Generator (1) – 490 horse power (1)	15	24
Mixing Pump – 75 horse power (1)	15	24
Pump – 525 horse power (2)	15	24
Crane (1)	4	4
Passenger Car/Pickup Truck Roundtrips (15)	15	2 per vehicle trip
Heavy Truck/Semi - Normal Operations (2)	15	4
Heavy Truck/Semi - Mobilization and Demobilization of Equipment (10)	4	4
Small Generators – 45 horse power (2)	15	4

Assumptions:

- Approximately four days will be required for mobilizing/demobilizing of drilling equipment prior to and after drilling/completion activities.
- Drilling and completion activities will last for 15 days for each well.
- Crane will be used for two (2) days at the beginning and end of drilling phase to rig up and take down drilling equipment.
- Heavy Truck/Semi trips include delivery of equipment, delivery of drilling mud, delivery of fuel for internal combustion engines, delivery and installation of cement for pipe casing, delivery of drilling pipe, etc.
- Passenger car/truck roundtrips assume 7-8 trips for each 12-hour work shift.
- Drilling activities will operate for 24 hours per day during the entire drilling phase.
- Mileage for vehicle/truck/semi trips is based on round trip mileage to and from Contractor's Road, part of Aera's Belridge Producing Complex, to the project site.

Table 5
Criteria Pollutant Emissions Calculations for Construction of Single Well Site, and the Drilling and Completion of a Single Water Injection Well from the Well Site

Project Phase	ROG Emissions (Tons/ Year/Phase)	NO_X Emissions (Tons/ Year/Phase)	PM_{10} Emissions (Tons/ Year/Phase)
Site Preparation Phase	0.01	0.04	0.01
Drilling Phase	0.42	1.52	0.09
Total	0.43	1.56	0.10

Table 6
Yearly Criteria Pollutant Emissions Calculations for Construction of Six (6) Well Sites, and the Drilling and Completion of Six (6) Water Injection Wells from the Well Sites

Project Phase	ROG Emissions (Tons/ Year/Phase)	NO_X Emissions (Tons/ Year/Phase)	PM_{10} Emissions (Tons/ Year/Phase)
Site Preparation Phase	0.06	0.24	0.06
Drilling Phase	2.52	9.12	0.54
Total	2.58	9.36	0.60

The SJVAPCD has established thresholds of significance for three (3) specific criteria pollutants in regards to the operation of specific projects, as shown below:

Table 7
SJVAPCD Significance Thresholds for Criteria Pollutants

Air Pollutant	*Tons/Year*
Reactive Organic Gas (ROG)	10
Nitrogen Oxides (NO_X)	10
Particulates (PM_{10})	15

Based on the emissions significance thresholds described previously above, the proposed project would be in compliance with the significance thresholds for NO_x, ROG and PM_{10}.

Engines and generators used during implementation of the proposed project will be registered under the CARB Portable Engine Registration Program. This program was officially implemented in March 1997. Aera shall comply with the air emissions control measures described in the SJVAPCD *Guide for Assessing and Mitigating Air*

Quality Impacts document to control dust and other emissions during construction. Under SJVAPCD CEQA rules, the implementation of these control measures would reduce impacts from criteria air pollutants to a less than significant level.

The proposed project includes the use of equipment that may contribute to or violate air quality standards. The project will comply with SJVAPCD Regulation VIII Fugitive Dust Rules (in particular, Rule 8021-Construction, demolition, excavation, and extraction) and Rule 8031 – transportation of bulk materials which reduce effects of this project with regard to air quality to the level of less than significant.

All engines used shall be maintained in compliance with the U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board engine standards.

Additional operational procedures that would be implemented during the proposed project to reduce air pollutant emissions are presented below:

1. All disturbed areas, including storage piles, which are not being actively used for construction purposes, shall be effectively stabilized using water. At a minimum this should include wetting down such areas in the late morning and after work is completed for the day.

2. Increased watering frequency should be conducted whenever wind speed exceeds 15 mph. Reclaimed water should be used whenever possible, however not around crops or for human consumption.

3. Unpaved access roads shall be effectively stabilized of dust emissions using water.

4. Gravel pads or rumble tracks shall be installed at all access points to prevent tracking of mud onto public roads.

5. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions by using the application of water or by presoaking.

6. When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six (6) inches of freeboard space from the top of the container shall be maintained.

7. Following addition of materials to, or removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions by using sufficient water.

8. Minimize the amount of disturbed area and limit traffic speeds on unpaved

access roads to 15 mph.

9. Limit and remove the accumulation of mud and/or dirt from adjacent public roadways at the end of each workday.

10. Establish a Dust Control Plan, if required, and maintain compliance with same.

11. Fleet owners of mobile construction equipment are subject to the CARB Regulation for in-use Off-road Diesel Vehicles to reduce diesel particulate matter (PM) and criteria pollutant emissions from in-use off-road diesel-fueled vehicles.

12. All commercial diesel vehicles must limit engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.

13. Diesel equipment meeting California Air Resources Board (CARB) Tier 1 emissions standards for off-road heavy-duty diesel engines shall be used. Equipment meeting CARB Tier 2 or higher emission standards should be used to the maximum extent feasible.

14. If feasible, diesel construction equipment shall be equipped with selective catalytic reduction systems, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by EPA or CARB.

15. Maintain all equipment as recommended by manufacturer manuals.

16. Shut down equipment when not in use for extended periods.

17. The engine size of construction equipment shall be the minimum practical size.

18. All construction workers shall be encouraged to shuttle (car-pool) to retail establishments or to remain on-site during lunch breaks.

19. SJVAPCD Rule 2280 Portable Equipment Registration for certain portable emissions units shall be required for well drilling, service or workover rigs, pumps, compressors, generators and field flares.

Mr. Leland Villalvazo, an air-modeling specialist with the SJVAPCD, was consulted with to identify the appropriate calculation method that would determine if the proposed project would violate the District's CEQA significance criteria for TACs. Mr. Villalvazo indicated that the *Air Toxics "Hot Spots" Information and Assessment Act of 1987 Facility Prioritization Scores Prioritization Version 2.0* model would be

the appropriate method to determine if the project would violate significance criteria for TACs. Additionally, Mr. Villalvazo recommended that the *Oilfield Equipment Heavy Crude Oil Fugitives* spreadsheet be used to determine the specific quantities of benzene, toluene, and xylene, TACs that would be emitted by the project (per Mr. Villalvazo). According to Mr. Villalvazo, after entering the required data in the *Air Toxics "Hot Spots" Information and Assessment Act of 1987 Facility Prioritization Scores Prioritization Version 2.0* model, the model would produce carcinogen and non-carcinogen prioritization scores for the project. If the prioritization scores produced by the model are less than 10, then the project is considered to have a less than significant impact, and no further analysis is required.

Data was input into the model, assuming a worst case scenario that six (6) wells would be drilled in a single year for the drilling phase of the proposed project. This is the phase of the project that would generate the greatest quantity of TACs during project implementation. According to the results of the model, the carcinogen prioritization score for the drilling phase was 0, while the non-carcinogen prioritization score was 0.00015. As such, the proposed drilling activities would have a less than significant impact, and no further modeling of TAC emissions is required. The *Air Toxics "Hot Spots" Information and Assessment Act of 1987 Facility Prioritization Scores Prioritization Version 2.0* model and *Oilfield Equipment Heavy Crude Oil Fugitives* spreadsheet are attached.

IIId. The proposed project site is located within an unincorporated area of Kern County. Scattered rural residences are located throughout the project area. The proposed project site would be located away from rural residences. Rural residences are considered a sensitive receptor. The nearest residence to the proposed project site is approximately 1.3 miles. Project activities would create pollutants that would be released to the localized area of the proposed project site. However, these pollutants would greatly disperse prior to reaching a sensitive receptor. Due to the distance of the proposed project site from sensitive residential receptors in the project area, the project is not expected to subject sensitive receptors to substantial pollutant concentrations. As such, impacts are considered less than significant.

IIIe. The proposed project site is located within an unincorporated area of Kern County. Scattered rural residences are located throughout the project area. The proposed project site would be located away from rural residences. Rural residences are considered a sensitive receptor. The nearest residence to the proposed project site is approximately 1.3 miles. Project activities may create odors, but they would only be perceptible in close proximity to the project site. Due to the distance of the proposed project site from residences, the project is not expected to create objectionable odors that would be noticeable at these residences. As such, impacts from odors would be considered less than significant.

Conclusion: Project design shall reduce potential impacts to Air Quality to a level of less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IV. BIOLOGICAL RESOURCES				
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	_____	_____	X	_____
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	_____	_____	_____	X
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	_____	_____	_____	X
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	_____	_____	_____	X
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	_____	_____	_____	X
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community, Conservation Plan, or other approved local, regional, or state habitat conservation plan?	_____	_____	_____	X

Discussion: A biological survey report was prepared for the proposed project in June of 2011 band is attached to this initial study/negative declaration. This report provides a detailed discussion of the biological resources present and potentially present within the project area. Field surveys were conducted to determine if special-status plant or animal species or suitable habitats occurred within the project area.

Special status species and their habitat have been documented in the general vicinity of the proposed project sites. Small pockets of valley saltbush scrub or annual grassland habitat are present within the proposed injection project boundary, any disturbance to those habitat types associated with well drilling will be mitigated at a ratio of 1.1:1 at Aera's Coles Levee Ecological Preserve. Much of the area identified as potential well sites and existing access roads is agricultural cropland where no habitat disturbance will occur. It is highly unlikely that construction of the proposed project well sites will have impacts on listed or sensitive species or habitats at the proposed project sites.

As indicated in the biological study, the majority of the proposed project site and adjacent areas are agricultural and do not represent habitat. As is the case with other USGS quadrangle maps, the current conditions on the ground do not necessarily reflect the conditions shown on the USGS quadrangle map. Current site conditions are documented based upon visual observation as well as existing aerial photographs and site photographs.

In order to ensure that no impacts to special-status wildlife and plant species occur, Aera will implement the *AERA ENERGY ENDANGERED SPECIES PROGRAM* (attached) which includes avoidance and minimization measures. These measures have been utilized by Aera for oil development activities occurring on private lands.

Conclusion: Project design shall reduce potential impacts to Biological Resources to a level of less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
V. CULTURAL RESOURCES				
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	_____	_____	_____	X
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	_____	_____	_____	X
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	_____	_____	_____	X
d. Disturb any human remains, including those interred outside of formal cemeteries?	_____	_____	_____	X

Discussion: Brunzell Cultural Resource Consulting (BCR Consulting) in May 2011 conducted a cultural resources record and information search and a pedestrian survey of the proposed project area. BCR Consulting also requested a search of the "Sacred Lands Inventory" maintained by the Native American Heritage Commission (NAHC) for the project area.

The cultural resources record and information search for the project area was conducted with the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System at the California State University, Bakersfield and included a review of:

- National Register of Historic Places (Directory of Determinations of Eligibility, California, Office of Historic Preservation, Volumes I and II, 2001);
- California Historical Landmarks (State of California 1996);
- California Points of Historical Interest listing (State of California 1992);
- Historic Property Data File (State of California 2005);
- Other pertinent historic data on file with BCR Consulting.

The records search revealed that four (4) cultural resource studies had been previously conducted, resulting in the recording of no historic or prehistoric cultural resources within one mile of the proposed project (See Table 8).

BCR Consulting requested a search of the Sacred Lands File maintained by the Native American Heritage Commission (NAHC) on May 28, 2011. The request included a brief project description and location maps sent by email to David Singleton of the NAHC. Mr. Singleton

performed the Sacred Lands File search, and provided names of potentially interested tribes and individuals to BCR Consulting on June 1, 2011. BCR Consulting then communicated via certified letters, emails, and phone calls with the potentially interested parties. The list included Rueben Barrios, Chairperson of the Santa Rosa Rancheria; Katherine Montes-Morgan, Chairperson of the Tejon Indian Tribe; Ryan Garfield, Chairperson of the Tule River Indian Tribe; David Laughinghorse Robinson, Kawaiisu Tribe of Tejon Reservation; Ron Wermuth; Delia Dominguez, Chairperson of the Kitanemuk & Yowlumne Tejon Indians; Arianne Garcia, Chairperson of the Chumash Council of Bakersfield; Robert Robinson, Co-Chairperson of the Kern Valley Indian Council; Kenneth Woodrow, Chairperson of the Esohm Valley Band of Indians/Wuksache Tribe; Donna Begay, Tribal Chairwoman of the Tubatulabals of Kern Valley; Lalo Franco, Cultural Coordinator of the Santa Rosa Tachi Rancheria. No responses have been received to date, but any responses received will be forwarded to Robert A. Booher Consulting.

Table 8
Records Search Results

USGS	Archaeological Sites	Built Environmental Resources	Reports
Belridge, CA (1973) 7.5 Minute USGS Quadrangle	None	None	KE-172*, 1813*, 2278*, 3777*

*Assessed portions of the proposed project.

Va,d Based on the cultural survey conducted by BCR Consulting, cultural and historical resources were not found within the proposed well sites, a 200-foot buffer area around the proposed well sites, existing access roads, or areas immediately adjacent to the existing access roads. In the event any undetected (i.e., buried) cultural resources, including human remains, are encountered on the proposed project sites, a qualified archaeologist shall be contacted to evaluate the find in conformance with CEQA Section 15064.5. A copy of the BCR's report is attached to this initial study/negative declaration.

Conclusion: No Impact to Cultural Resources.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VI. GEOLOGY AND SOILS				
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
a. Landslides?	_____	_____	_____	X
b. Strong seismic ground shaking?	_____	_____	_____	X
c. Seismic-related ground failure, including liquefaction?	_____	_____	_____	X
b. Result in substantial soil erosion or the loss of topsoil?	_____	_____	_____	X
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as result of the project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	_____	_____	_____	X
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1194), creating substantial risks to life or property?	_____	_____	_____	X
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	_____	_____	_____	X

Discussion: The proposed project sites consist primarily of agricultural lands. Several paved and dirt access roads exist within the vicinity of the proposed well sites which currently provides access for local farmers. Topography at the proposed well sites is flat. Based on the results of the site visits conducted on May 2 and 3, 2011, slope at the proposed project sites average less than 2 percent. No buildings or structures are currently present on the proposed project sites. The proposed project will not involve the construction of any structures. The proposed water disposal wells will be drilled to approximately 800 to 1,000 feet below ground surface (bgs).

VIa. The proposed project will not expose people or structures to potential adverse effects from landslides as the project topography is flat and there are no inhabited structures that would be impacted by strong seismic ground shaking, or seismic-related ground

failure (including liquefaction and lateral spreading). The closest known active fault in geographic relation to the proposed project sites is the San Andreas Cholame located approximately 15.4 miles west of the closest proposed well site.

The drilling of an injection well simulates the effects of an earthquake, and causes shaking of the rig while rotary drilling (especially hard, high torque formations). Many small capacity drilling rig and/or production rigs are anchored via guy wires for stability, while most large capacity (deep drilling) rig have a low center of gravity with heavy base sub-structures that taper up to smaller top member. This design, with low center of gravity, effectively allows the rig to with stand shaking and movement without falling over.

VIb. Because each of the proposed project sites is located in a flat area, the proposed project will not result in substantial soil erosion or the loss of topsoil. Existing drainage patterns will be maintained within each of the proposed disposal well sites.

VIc. Implementation of the proposed project will not increase ground subsidence in the project area as a result of water usage.

During the site preparation and drilling phases for each project site, water would be supplied from a system supplied by the California Aqueduct, not a local groundwater source. Accordingly water use during each of these phases would have no impact on subsidence.

The proposed disposal wells will be drilled to approximately 800 to 1,000 feet below ground surface (bgs). Due to the fact that Aera is injecting water into oil field zones and not extracting water from oil field zones, no subsidence anticipated

As the topography is flat, the proposed project sites will not be subject to landslide risks; therefore, there are no impacts expected.

VId. The proposed project sites are underlain by Kimberlina fine sandy loam, Panoche clay loam and Milham sandy loam deposits derived from the Temblor Range to the west. These sediments can have low to moderate expansive characteristics which are limiting to some construction activities. However, with proper moisture conditioning during compaction activities, and the fact that drilling activities require no foundations for mobile equipment, there will be no impacts due to expansive soils.

VIe. The proposed project does not involve the construction of any facilities requiring the use of septic tanks or any waste disposal systems. Excess drilling water is the only potential wastewater that will be generated during project activities, and it will be transported offsite to another drilling location on Aera property.

Conclusion: No Impact.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VII. GREENHOUSE GAS EMISSIONS				
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	_____	_____	X	_____
b. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	_____	_____	X	_____

Discussion: Greenhouse gas (GHG) is any gas that absorbs infrared radiation in the atmosphere. GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), halogenated fluorocarbons (HCFCs), ozone (O_3), perfluorinated carbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF_6). On December 7, 2009, the U.S. Environmental Protection Agency (EPA) issued an Endangerment Finding on the above referenced key well-mixed GHGs. These GHGs are considered "pollutants" under the Endangerment Finding. However, these findings do not themselves impose any requirements on industry or other entities.

The Global Warming Solutions Act (AB32) was passed by the California Legislature and signed into law by the Governor in 2006. AB32 requires that GHG emissions in 2020 be reduced to 1990 levels. GHG rules and market mechanisms for emissions reduction are required to be in place by January 1, 2012. At present, certain stationary source facilities are required to report GHG emissions on an annual basis. The proposed project is for drilling water injection wells. As such, the project is temporary in nature, and is not classified as a stationary source facility. Therefore, Aera would not be required to report GHG emissions.

In August 2008, the SJVAPCD Governing Board adopted the Climate Change Action Plan (CCAP). The CCAP directed the District's Air Pollution Control Officer to develop guidance to assist the District staff, valley businesses, land–use agencies, and other permitting agencies in addressing GHG emissions as part of the CEQA process. In support of this guidance, the SJVAPCD released a staff report titled "*Addressing Greenhouse Gas Emissions under the California Environmental Quality Act*" on December 17, 2009. The staff report provided a summary of background information on global climate change, the current regulatory environment surrounding GHG emissions, and the various concepts in addressing the potential impacts of Global Climate Change under CEQA. The report also evaluated different approaches for estimating impacts, and summarized potential GHG emission reduction measures. District

staff concluded in the report that existing science is inadequate to support quantification of impacts that project specific GHG emissions have on global climatic change.

The SJVAPCD has developed an approach intended to streamline the process of determining if project specific GHG emissions would have a significant effect. The methodology relies on the use of best performance standards (BPSs) that would be applicable to projects that result in increased GHG emissions. Use of performance-based standards is not a method of mitigating emissions. Rather it is a method of determining significance of project specific GHG emission impacts using established specifications or project design elements. Establishing BPSs would help project proponents, lead agencies, and the public by proactively identifying effective, feasible GHG emission reduction measures. Emission reductions achieved through implementation of BPS would be pre-quantified, thus negating the need for project specific quantification of GHG emissions.

BPSs are defined as the most effective achieved-in-practice means of reducing or limiting GHG emissions from a GHG emissions source. For traditional stationary source projects, BPS includes equipment type, equipment design, and operational and maintenance practices for the identified service, operation, or emissions unit class and category. According to the SJVAPCD, projects implementing BPSs in accordance with this guidance would be determined to have a less than significant individual and cumulative impact on global climate change and would not require project specific quantification of GHG emissions.

VIIa,b. **E**missions were calculated to determine GHGs emitted by the proposed project. GHG emissions were estimated using Road Construction Emissions Model, Version 6.3.2 software, which is recommended by the SJVAPCD for use in calculating air emissions for this type of project. This program determined that the only GHGs emitted by the project would be CO_2. None of the other GHGs previously listed would be produced by the proposed project.

GHG emissions for the project were estimated based on lists of equipment for each phase of the project and the corresponding assumptions provided by Aera. Equipment proposed for use during the proposed project and corresponding assumptions are found in Tables 3 and 4 in Section III, Air Quality.

Table 9 summarizes the tons per year of GHG emissions that could be produced during the construction of a single well site, and the drilling and completion of a single water injection well from the well site. Table 10 summarizes the tons per year of GHG emissions that could be produced during the construction of six (6) well sites, and the drilling and completion of six (6) water injection wells from the well sites. Table 11 summarizes the tons of GHG emissions that could be produced during complete project build out [the construction of 30 well sites, and the drilling and completion of 30 wells from the well sites. As stated previously, the operation phase of the water injection wells will not produce air pollutants, including GHGs.

Table 9
GHG Emissions Calculations for Construction of a Single Well Site, and the Drilling and Completion of a Single Water Injection Well

Project Phase	CO_2 Emissions (Tons per Phase)
Construction Phase	4.93
Drilling Phase	321.79
Total Emissions	**326.72**

Table 10
Yearly GHG Emissions Calculations for Construction of Six (6) Well Sites, and the Drilling and Completion of Six (6) Water Injection Wells

Project Phase	CO_2 Emissions (Tons per Phase)
Construction Phase	29.58
Drilling Phase	1,930.74
Total Emissions	**1,960.32**

Table 11
GHG Emissions Calculations for Complete Project Build-out (Construction of 30 Well Sites, and the Drilling of 30 Water Injection Wells)

Project Phase	CO_2 Emissions (Tons)
Construction Phase	147.90
Drilling Phase	9,653.70
Total Emissions	9,801.60

As previously discussed, Aera is proposing to construct six (6) well sites and drill six (6) water injection wells from the well sites yearly for approximately five (5) years until 30 water injection wells are drilled and completed. The well sites would be prepared, and the water injection wells would be drilled completed. Therefore, under

the worst-case scenario of complete project implementation, a total of 9,801.60 tons of GHGs would be emitted.

Since quantitative GHG guidelines, regulations, methodologies, significance thresholds, standards, or analysis protocols for the assessment of GHG emissions and climate change have not been developed or adopted by the SJVAPCD, DOGGR, or other regulatory bodies, these emission calculations are provided for informational purposes only. The methodology to establish an appropriate baseline by which to develop a project-level inventory for the proposed project has not yet been established that would allow for an appropriate analysis of the impact of the project on climate change or the impact of climate change on the project.

Global climate change is a cumulative impact. A project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG emissions. However, the impacts on global warming and climate change are indirect, not direct, and the emissions cannot be correlated with specific impacts based on currently available science. Climate change is a worldwide phenomenon, and local government currently lacks the expertise to develop the scientific tools and policy needed to select quantitative CEQA significance thresholds for climate change or GHG emissions.

While it is not possible to determine whether the proposed project individually would have a significant impact on global warming or climate change, the project would contribute to cumulative GHG emissions in California. Kern County and the SJVAPCD currently do not have GHG inventories. On December 6, 2007, CARB established a GHG emissions limit based on the 1990 level for 2020 and adopted regulations requiring mandatory reporting of GHGs for large facilities. After a year of investigation, CARB has established that the state's 1990 emissions were approximately 471 million tons of CO_2. Preliminary estimates indicate that 2020 emissions could be approximately 600 million tons of CO_2 if no actions are taken to reduce GHGs.

As stated previously, the proposed project would emit a total of 1,960.32 tons of CO_2 into the atmosphere yearly during project implementation. This represents less than 0.0004 % of the yearly contribution of CO_2 into the atmosphere in the State of California under 1990 emissions levels, and even less under the estimated levels for 2020. The proposed project's main contribution to GHG emissions would be from motor vehicles, heavy trucks, construction equipment, and other stationary internal combustion engines used to power drilling operations. The proposed project's emissions would contribute to an increase in GHG emissions. The effect of anticipated actions by CARB to address transportation issues, such as the development of fuels with less carbon, is not known at this time. However, without the necessary science and analytical tools, it is impossible to assess with certainty whether the proposed project's contribution would be cumulatively considerable within the meaning of the CEQA Guidelines, Sections 15065(a) (3), 15130, and 21083.

Section 15130 of the CEQA Guidelines notes that sometimes the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis and global climate change is this type of issue. Causes and effects are not just regional or statewide, they are worldwide.

Aera would limit or mitigate its release of GHGs through a combination of the following BPSs/operational measures:

- All engines used shall be maintained in compliance with the U.S. Environmental Protection Agency (USEPA) and the CARB engine standards.

- SJVAPCD Rule 2280 Portable Equipment Registration for certain portable emissions units shall be required for site preparation and well drilling activities.

Because Aera is implementing the above operational measures/BPSs as suggested by the SJVAPCD, the proposed project would have a less than significant individual and cumulative impact on global climate. Implementation of these measures also ensures that the project is in compliance with the Climate Change Action Plan being implemented by the SJVAPCD.

Conclusion: Project design shall reduce potential impacts to Air Quality to a level of less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VIII. HAZARDS & HAZARDOUS MATERIALS				
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	_____	_____	_____	X
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	_____	_____	X	_____
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	_____	_____	_____	X
d. Be located on a site which is included on a list of hazardous materials compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?	_____	_____	_____	X
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	_____	_____	_____	X
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	_____	_____	_____	X
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	_____	_____	_____	X
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	_____	_____	_____	X

Discussion: The proposed project site consists primarily of agricultural lands. Potential hazardous materials uses in the project area that may affect the implementation of the proposed project are former and existing oil and gas wells, pesticides and herbicides from agricultural uses, residential storage and usage and private farm workshops. Drilling a water disposal well requires minimal transportation, use or storage of hazardous materials including fuels, oils, lubricants, hydraulic fluids and solvents used at each well location.

VIIIa. There is potential for accidental releases of hazardous materials during project operations. There is also potential for an accidental release during drilling operations if there is a blowout; however, surface casing will be set, cemented, and blowout prevention equipment will be installed at each wellhead and tested to minimize the potential releases associated with blowouts. Potential impacts associated with the accidental release of these materials depend on the quantity and type, the location where it is used, the toxicity or other hazardous characteristics of the material, and whether it is transported, stored, and used in a solid, liquid, or gaseous form.

During site preparation, a reserve pit may be excavated within each of the proposed well sites. Compaction of the surface, combined with the deposition of bentonite drilling muds during drilling operations, will give the pit a seal. Completing the site preparation process for the proposed well sites will require approximately 2 days per site. Water may be applied to access roads and the proposed well sites to facilitate movement of heavy equipment and to control dust.

The following procedures will be implemented to avoid and/or minimize potential impacts resulting from hazards or hazardous materials:

1. All hazardous materials such as diesel fuel shall be stored according to applicable federal, state and local regulations and Material Safety Data Sheets shall be on each site. Waste materials shall be managed properly in accordance with applicable federal, state and local requirements. Training shall be provided to all personnel involved in handling of hazardous materials/waste.

2. In order to minimize potential impacts associated with a blowout, surface casing shall be set, cemented, and blowout prevention equipment installed at each wellhead and tested. Requirements for well casing design and blowout prevention equipment are regulated by DOGGR. DOGGR engineers shall be notified for required tests and other operations.

3. A project specific emergency response plan shall be prepared for the project and a copy of the plan shall be kept on each site. The plan shall discuss methods to avoid and/or minimize impacts in the event of a release. The purpose of the plan shall be to ensure that adequate containment would be provided to control accidental spills, that adequate spill response equipment and absorbents would be readily available, and that personnel would be properly trained in how to control and clean up any spills.

4. Fluid disposal shall follow RWQCB regulations.

5. If project development uncovers any previously unknown oil, gas, or injection wells, DOGGR shall be notified. Part of project approval includes the re-abandonment of two wells, "Jacobs"57 (029-36367) and SWEPI 45-22 (029-35032) identified during the Area of Review (AOR) as requiring additional work prior to initiating injection in the disposal well project area.

With the implementation of the operational procedures, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

VIIIb. See VIIIa.

VIIIc. No existing or proposed schools are located within one-quarter mile of any of the proposed well sites. Belridge Elementary School is located approximately 1.2 miles west of the proposed project sites. Therefore, the proposed project would not have the potential to emit hazardous emissions or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

VIIId. The proposed project sites are not located on listed hazardous material sites. Therefore, the proposed project would not create a significant hazard to the public or environment.

VIIIe,f. The proposed project sites are not located within an airport land use plan or within two miles of a public airport or public use airport. The Lost Hills Kern County Airport is located approximately 8.8 miles northeast of the proposed well sites. Therefore, the proposed project would not result in a safety hazards for people residing or working in the project area related to public airport activities.

VIIIg. Implementation of the proposed project will not alter any existing and/or adopted emergency response plans or emergency evacuation plans for the local area.

VIIIh. The proposed project is not located in wildland areas. Therefore, the proposed project will not increase fire risk in wildland areas.

Conclusion: Project design shall reduce any potential impacts relative to hazards and hazardous materials to a level of less than significant.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IX. HYDROLOGY AND WATER QUALITY *Would the project*:				
a. Violate any water quality standards or waste discharge standards?			X	
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on-or off-site?				X
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site?				X
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				X
f. Otherwise substantially degrade water quality?		X		
g. Place housing within a 100-year flood hazard area?				X
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j. Inundation by mudflow?				X

Discussion: The proposed project sites fall within the Tulare-Buena Vista Lakes Watershed. The watershed supports a variety of water uses including municipal and agricultural supply systems and recreation. Surface water in many areas is intimately connected with the ground water along the nearby alluvial valleys, thereby having a profound effect on local groundwater supplies. The proposed project will not alter current drainage patterns in the project area and will be short term in nature. All water required during implementation of drilling will be imported to the proposed well sites from local surface water sources with existing entitlements.

IXa. The project area does not conflict with applicable water quality and waste discharge standards relating to hydrology and water quality. The project will comply with all requirements established by the RWQCB. RWQCB Waiver Resolution No. R5-2008-0182 waives the requirement to file a Report of Waste Discharge and/or issue Waste Discharge Requirements for the temporary discharge of drilling mud to a sump (pit). Resolution No. R5-2008-0182 includes several conditions such as a sump design must assure no overflow; drilling mud can remain in a sump only if it can be demonstrated to be non-hazardous; drilling mud in a sump must be dried by evaporation or pumping; and, the site must be restored to pre-sump conditions and the area shall be restored within 60 days of completion of a well. The solids that accumulate in the mud pits/tanks can be reused if it is demonstrated that they are nonhazardous. If any wastes test positive for hazardous material they will be disposed of in the appropriate licensed site. These waste materials would be disposed of at a Class 1 through Class 3 disposal site depending on the results of analytical testing at the conclusion of the project. It is not possible at this time to determine the appropriate class of waste facility to be used without analytical data.

All disposal well operations will be regulated by DOGGR to protect groundwater. The EPA and RWQCB have commented on numerous occasions regarding measures necessary to protect underground sources of drinking water and other groundwater beneficial uses as mentioned above. The EPA requested that the aquifer exemption area extend at least one mile beyond (down-gradient) the permissible injection project area. As an additional protection of USDWs, between the injection project and potential receptors, Aera controls one mile of the aquifer beyond the aquifer exemption boundary. During negotiations with the RWQCB, Aera has committed to a minimum depth of injection and the installation of a pressure and water quality monitoring network to protect beneficial uses of waters of the State existing beyond the exemption boundary. Finally, the RWQCB conditions include reporting of monitoring network pressure and water quality results annually.

IXb. Compliance with applicable statutes, regulations, aquifer exemption and injection project permit conditions will verify that groundwater utility is not being degraded and that the project will not interfere with groundwater recharge, or deplete groundwater resources in a manner that will cause water-related hazards such as subsidence. In compliance with DOGGR regulations, Aera will install and cement surface casing to prevent blowouts and contamination of fresh water aquifers. DOGGR regulations specify that the base of fresh water must be protected with

cemented casing to prevent any contamination from migrating fluids encountered in oil and gas zones. The regulations also specify that oil and gas zones must be protected with cemented casing to prevent any contamination from infiltrating water. DOGGR engineers review the drilling and completion operations to ensure these requirements have been met. Therefore, the project would not be expected to alter groundwater supplies or their utility.

IXc,e. The project will not alter the current drainage pattern in a manner that will promote flooding, erosion or siltation either on or off the sites. The project will maintain existing agricultural and oil field drainage patterns. The project will create minimal runoff as the injection well sites are less than 1 acre in size and are not completely impervious. Accordingly, no existing or planned stormwater drainage systems will be altered and the capacity of the existing systems will not be exceeded.

IXf. See IXa-e.

IXg,h. The proposed project would not involve the construction of any structures within a 100-year flood plain, and therefore, would not impede or redirect any water flow within a 100-year flood plain.

IXi,j. There is no potential for seiche or tsunami due to the lack of a significant water body near the proposed project sites. The project area is flat eliminating the possibility of mudflow. No evidence of past mudflows was observed within or adjacent to the proposed project area. Flooding is not known to occur within the project area.

Conclusion: Less than significant impact with mitigations included as Aquifer Exemption and Injection Project approval.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
X. LAND USE AND PLANNING *Would the project:*				
a. Physically divide an established community?	_____	_____	_____	X
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	_____	_____	_____	X
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	_____	_____	_____	X

Discussion: Primary land use for the proposed project area is agriculture. Additional land uses within and adjacent to the proposed project area include drilling, production and transportation of oil and natural gas. The proposed project is compatible with existing land uses.

Xa. The proposed project sites will not physically divide an established community because the proposed project sites are located in un-incorporated agricultural areas.

Xb. The proposed project is consistent with the Kern County General Plan land use and zoning designations for the project area and is therefore considered consistent with associated agricultural resource planning purposes and General Plan requirements. The Kern County General Plan Land Use and Resource Conservation Elements state that petroleum exploration and extraction, mineral and petroleum, petroleum fields and mineral deposits of regional and statewide significance are "compatible" uses with agricultural designations.

Xc. The proposed project does not conflict with any Habitat Conservation Plans, Natural Communities Conservation Plans other approved local, regional, or state habitat conservation plans in the project area.

Conclusion: No Impact

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XI. MINERAL RESOURCES				
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	_____	_____	_____	X
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	_____	_____	_____	X

Discussion: Kern County including the general project area serves as an important regional source of oil and natural gas. Previously identified oil fields in the general project area include the North and South Belridge Fields. The proposed aquifer exemption and disposal project sites are located east of and adjacent to the South Belridge Field. Two wells Jacobs"57 (029-36367) and SWEPI 45-22 (029-35032) require re-abandonment attempts prior to approval of the proposed injection project.

The proposed project is consistent with the Kern County Land Use, Open Space and Conservation Element of the Kern County General Plan. It is also consistent with the Kern County Zoning Ordinance, Chapter 19.98 (Oil and Gas Production which includes operating a disposal well).

XIa,b. The proposed project will not result in the loss of availability of a known mineral resource, or the loss of a locally important mineral resource recovery site.

Conclusion: No Impact.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XII. NOISE				
Would the project:				
a. Exposure of people to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	_____	_____	X	_____
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	_____	_____	_____	X
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	_____	_____	_____	X
d. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	_____	_____	_____	X
e. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	_____	_____	_____	X

Discussion: The proposed project is compatible with existing land uses in the project area and areas immediately adjoining the project parcels. However, the Kern County Energy Element of the General Plan states that any kind of energy development generates significant noise levels.

The proposed project will result in short term noise impacts. Site preparation and drilling and completion activities are expected to use the following types of equipment: drilling equipment, truck-mounted crane, pumps, pneumatic tools, loaders, and a variety of miscellaneous equipment including air compressors. The number and type of equipment used during project activities will vary from day to day.

The U.S. EPA has found that the noisiest equipment types operating at construction sites typically range from 88 dBA to 101 dBA at a distance of 50 feet. Table 12 below lists noise levels typically generated by construction equipment.

TABLE 12
NOISE LEVELS GENERATED BY CONSTRUCTION EQUIPMENT

Type of Equipment	Typical Sound Level (dBA at 50 feet)
Pump	76
Generator	76
Air Compressor	81
Concrete Mixer (truck)	85
Pneumatic Tools	85
Backhoe	85
Excavator	86
Dozer	87
Front-End Loader	88
Dump Truck	88
Jack Hammer	88
Scraper	88
Pavers	89
Pile Driver	101

Sources: *U.S. Environmental Protection Agency, 1974; Noise Control for Building and Manufacturing Plants, BBN Layman Miller Lecture Notes, 1987.*

In order to determine typical sound levels associated with oil and gas well drilling operations, Robert A. Booher Consulting conducted a sound survey on November 18, 2005 of Kenai Rig #38 using a Metrosonics 3080 Metrologger, Portable Audio Dosimeter. At the time of the survey, Kenai Rig #38 (a double rig) was drilling a natural gas well in Sutter County, California. Weather conditions at the time were clear with little to no wind, and a temperature of 48 degrees Fahrenheit. At the time of the survey, all drilling equipment was operating including multiple engines and both drilling mud pumps. The results of the survey are presented below in Table 13. Aera anticipates using the same or equivalent drilling rig for its proposed project site.

Table 13
Sound Survey Kenai Rig #38

Distance (feet)	North (dBA)	South (dBA)	West (dBA)	East (dBA)
50	87	78	85	83
100	80	72	78	76
150	75	68	72	69

Source: Robert A. Booher Consulting, November 18, 2005. Sound Survey Kenai Rig#38. Sutter County, CA.

Based on the data in Tables 12 and 13, equipment anticipated to be associated with the construction of the proposed project sites and drilling of the proposed disposal wells will produce maximum sound levels of 85 dBA at a distance of 50 feet from the proposed project site during construction and 87 dBA during drilling. The nearest residence is located approximately 1.3 miles (6,830 feet) north-northeast of the proposed Section 21 disposal project site.

Noise level at the closest residence to the proposed Section 21 disposal project site was calculated using the equation below.

$L_1 = L_2 + 20\log_{10}(R_2/R_1)$
$L_2 = L_1 - 20\log_{10}(R_2/R_1)$
$L_2 = 87 - 20\log_{10}(6{,}830'/50')$
$L_2 = 87 - 43$
$L_2 = 44$ dBA

L_1 = Sound level at Object 1, the dosimeter due northeast of the noise source (87 dBA)
L_2 = Estimated sound Level at Object 2, the nearest residence
R_1 = Distance from the source of noise to the northeast dosimeter (50 feet)
R_2 = Distance from the source of noise to the nearest residence (6,830 feet)

XIIa. Based upon the results presented above, the average outdoor noise level at the proposed Section 21 disposal site is expected to be 44 dBA during drilling activities at the closest residence. The proposed wells will be in compliance with the Noise Control Ordinance in the Kern County Code (Section 8.36.020 et seq.) and with Kern County General Plan Noise Element. The Noise Control Ordinance in the Kern County Code (Section 8.36.020 et seq.) prohibits a variety of nuisance noises but does not specifically mention construction or related noise. The Kern County General Plan Noise Element establishes a 65 dBA maximum Day-Night Average Noise Level (Ldn) as being considered compatible with residential uses or development.

XIIb. The proposed project is expected to create ground-borne vibration as a result of project activities (i.e., during site preparation and well drilling activities). Vibration is sound radiated through the ground. The rumbling sound caused by the vibration is called ground-borne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB). The background vibration velocity level in residential areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximately dividing line between barely perceptible and distinctly perceptible levels for many people (Federal Railroad Administration 1998). The general human response to different levels of ground-borne vibration velocity levels is described in the following table:

Table 14
Human Response to Different Levels of Ground-borne Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.
100VdB	General threshold where minor damage can occur to fragile buildings.

Source: Federal Railroad Administration, 1998 and Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

Typical outdoor sources of perceptible ground-borne vibration are construction equipment and traffic on rough roads. For example, if a roadway is smooth, the ground-borne vibration from traffic is rarely perceptible. A large bulldozer creates ground-borne vibration of 87 VdB at 25 feet from the bulldozer, and 63 VdB at 400 feet from the bulldozer, while a semi truck creates groundborne vibration of 86 VdB at 25 feet, and 62 VdB at 400 feet (Federal Railroad Administration 1998).

Typically, ground-borne vibration generated by construction activity attenuates rapidly with distance from the source of the vibration. Therefore, vibration issues are generally confined to distances of less than 500 feet (Federal Railroad Administration 1998).

Potential sources of vibration during construction and drilling of the project will include transportation of equipment to the proposed project sites, and operation of equipment during construction of the wells. Rubber tired equipment transportation equipment on paved roads generates vibration levels of approximately 65VdB, which is at the lower end of perceptibility. Equipment movement on dirt roads occurs at low speeds (less than 15 mph) that result in lower vibration. Heavy tracked earth moving equipment could generate perceptible vibrations approaching 93 VdB, However, the proposed project will not require the use of heavy tracked equipment.

Vibration can also be described by "peak particle velocity" or PPV. A PPV of 0.012 inches/sec is slightly perceptible to receptors (*Transportation and Construction-Induced Vibration Guidance Manual*, California Department of Transportation, 2004). As stated previously, the nearest residence is located approximately 1.3 miles (6,830 feet) north-northeast of the proposed Section 21 disposal project site. Using the worse case scenario of a large tracked bulldozer, (PPV=0.089 at 25 feet), the geometric attenuation of vibration amplitude can be described as follows:

$PPV_{Equipment} = PPV_{Ref}(25/D)^n$ (in/sec)

Where:

PPV = reference PPV at 25 feet
D = distance from equipment to the nearest residence in feet
n = 1.1 (the value related to the attenuation rate through the ground

For the bulldozer:

$PPV = 0.089(25/6,830)^{1.1} = 0.0002$ in/sec (Section 21 disposal site)

These results are well below the level of vibration perceptible to the nearest residences. Therefore, no impacts are expected as a result of ground vibration.

XIIc. The proposed project is short term and temporary in nature; accordingly, there will be no increase in the permanent ambient noise levels in the project vicinity.

XIId,e. The proposed project sites are not located within an airport land use plan or within two miles of a public airport or public use airport. The Lost Hills Kern County Airport is located approximately 8.8 miles northeast of the proposed well sites. Therefore, the project would not expose people to excessive noise levels.

Conclusion: Project design shall reduce potential impacts to a level of less than significant impact.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XII. POPULATION AND HOUSING				
Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension or roads or other infrastructure?	_____	_____	_____	X
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	_____	_____	_____	X
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	_____	_____	_____	X

Discussion: The proposed project sites are located in an unincorporated area of Kern County. The project area is used for agriculture and oil and gas production. The closest community to the proposed project site is Lost Hills, which is located approximately 9 miles to the north of the nearest portion of the proposed injection project sites. The closest residence to the proposed project site is located 1.3 miles (6,830 feet) northeast of the nearest portion of the proposed injection project site.

XIIIa. Project personnel, drilling company employees and other support personnel currently reside in the local area primarily within the city of Bakersfield. Accordingly, the proposed project will not induce population growth in the project area.

XIIIb,c. The project does not propose to displace or relocate any existing housing or persons. Therefore, no persons will be displaced nor housing be constructed elsewhere during project implementation.

Conclusion: No Impact.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIII. PUBLIC SERVICES				
Would the project:				
a. result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	_____	_____	_____	X
Police protection?	_____	_____	_____	X
Schools?	_____	_____	_____	X
Parks?	_____	_____	_____	X
Other public facilities?	_____	_____	_____	X

Discussion: The proposed well sites are located on private lands in an incorporated area of Kern County.

XIVa. The Kern County Sheriff's Department provides law enforcement services in the project area. The Kern County Fire Department provides fire protection services in the project area. No cities, schools, parks, or other public facilities are located in the general vicinity of the proposed project sites. No existing or proposed schools are located within one-quarter mile of any of the proposed project sites. Belridge Elementary School is located approximately 1.2 miles west of the proposed project sites. The proposed project sites are not located within two (2) miles of a public airport or public use airport. The Lost Hills Kern County Airport is located approximately 8.8 miles northeast of the proposed well sites. Therefore, implementation of the proposed project is not expected to interfere with or adversely affect fire protection, police protection, school, airports, park, or other public services or facilities in the project area.

Conclusion: No Impact.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XV. RECREATION				
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	_____	_____	_____	X

Discussion: The proposed project area and the proposed well sites are located in an area that is used primarily for agriculture and oil and gas production. The project area is privately owned and used for oil and gas production or agriculture and does not currently provide recreational activities to the public.

XVa. There are no recreational facilities within the project area. The proposed project will not require the use of recreational resources and will not create the need for new recreational facilities. Therefore, no impacts to recreational facilities are expected.

Conclusion: No Impact.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVI. TRANSPORTATION/TRAFFIC				
Would the project:				
I. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e. result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections?	_____	_____	X	_____
II. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	_____	_____	_____	X
III. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	_____	_____	_____	X
IV. Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	_____	_____	_____	X
V. Result in inadequate emergency access?	_____	_____	_____	X
VI. Result in inadequate parking capacity?	_____	_____	_____	X
VII. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	_____	_____	_____	X

Discussion: California State Highway 33 will serve as the main access roadway to the project site. Local private and public roadways will provide access from State Highway 33 to the specific well sites. These local roadways are both paved and unpaved, and provide access for farmers, oilfield workers, and others working in the vicinity of the proposed well sites. California State Highways 33 is designated as principal arterial roadways by the Kern County General Plan (General Plan).

XVIa. As presented in Table 4, the maximum number of daily vehicle trips would be 58 (29 round trips to and from the project site) for each well site. This would occur during the mobilization/demobilization when drilling equipment is moved on and off site. The 29 vehicle round trips would include 12 heavy truck/semi round trips, 15 passenger car/pickup truck roundtrips, one (1) crane, and one (1) water truck round

trip.

State Highway 33 is designed to carry a capacity of up to 10,000 cars per day in the vicinity of the proposed project sites (Kern County General Plan, Circulation Element). RAB Consulting reviewed traffic counts conducted by Caltrans at the intersection of State 33 and Lost Hills Road (the point where traffic created by the proposed project would affect local traffic the greatest) during 2009 to quantify the average annual daily traffic (AADT) levels. According to Caltrans, the AADT for State Highway 33 at its intersection with Lost Hills Road is 5,000 vehicles (Caltrans Website 2011 - http://traffic-counts.dot.ca.gov/index.htm). Therefore, State Highway 33 reaches approximately 50.0 % of capacity on an average day during the year. Accordingly, activities at a given well site using Highway 33 for access would contribute a maximum of 58 additional vehicles trips per day during the proposed project. As such, work at the project site would increase the roadway capacity a maximum of 0.6% during project implementation. Based on 50.0 % use of capacity on an average day and the additional maximum daily use of 0.6 % of capacity during project implementation, a maximum of approximately 50.6 % of the daily traffic capacity of the highway would be used during the project. Therefore, work at a given well site would not contribute to an exceedence in the designed capacity of State Highway 33 during the proposed project.

XVIb. The General Plan classifies roadway Level of Service (LOS) for rural and unincorporated areas of the County with a rating of A, B, C, D, E, or F with A representing the best LOS, and F representing the worst LOS. LOS ratings are defined briefly below:

- LOS A - Conditions of free flow. Speed is controlled by drivers' desires, speed limits, or physical roadway conditions, not other vehicles.
- LOS B - Conditions of stable flow. Operating speeds beginning to be restricted, but little or no restrictions on maneuverability.
- LOS C - Conditions of stable flow. Speeds and maneuverability somewhat restricted. Occasional back-ups behind left-turning vehicles at intersections.
- LOS D - Conditions approach unstable flow. Tolerable speeds can be maintained, but temporary restrictions may cause extensive delays. Speeds may decline to as low as 40% of free flow speeds. Little freedom to maneuver; comfort and convenience low.
- LOS E - Unstable flow with stoppages of momentary duration. Average travel speeds decline to one-third the free flow speeds or lower, and traffic volumes approach capacity. Maneuverability severely limited.
- LOS F - Forced Flow. Represents jammed conditions. Intersection operates below capacity with several delays; may block upstream intersections.

The General Plan establishes LOS D as the minimum acceptable standard for principal arterial roadways. The segment of State Route 33 through the project area is classified as LOS B to C (Kern County General Plan, Circulation Element). Therefore, State Route 33 in the project area is considered to have an acceptable LOS. The addition of a maximum of 58 vehicle trips traveling to a proposed well site on a daily basis would not be considered a significant increase in the AADT, and as such, would not have a significant effect on the existing LOS for State Highway 33.

XVIc. The project will not impact air traffic patterns. The proposed project sites do not occur within the immediate vicinity of any public or private airstrips, and will not interfere in any way with the traffic patterns of aircraft.

XVId. No public roads will be constructed or improved as part of this project. Therefore, the project is not expected to increase the hazards due to a design feature or incompatible uses of a roadway.

XVIe. The proposed well sites will have adequate emergency access.

XVIf. The proposed project sites will have adequate parking for workers and equipment required to drill each well. The proposed project will not use any public parking and will not result in inadequate parking capacity.

XVIg. Drilling and completion of water disposal wells will not affect pedestrian or bicycle circulation as no public roadways will be altered or improved during project activities. The proposed project will have restricted access; accordingly, bicyclists and pedestrians will not have access to each site. Additionally, the proposed project is in a remote area and pedestrians and bicyclists are not common in this area.

Conclusion: Less than significant impact.

ISSUES	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVII. UTILITY AND SERVICE SYSTEMS				
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	_____	_____	_____	X
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	_____	_____	_____	X
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	_____	_____	_____	X
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or new or expended entitlements needed?	_____	_____	_____	X
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	_____	_____	_____	X
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	_____	_____	_____	X

Discussion: No utility or service systems expansion will be required to support the drilling, completion or operation of the water disposal wells. Power lines, natural gas pipelines and oil pipelines are located throughout the project area.

XVIIa. The project does not conflict with applicable water quality and waste discharge standards relating to water quality. Class II injection fluids will be managed in accordance with aquifer exemption and injection project approval requirements reviewed by the RWQCB. Accordingly the proposed project would not exceed wastewater treatment requirements of the RWQCB.

XVIIb. The project as proposed will not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

XVIIc. The project will create minimal runoff as the drill sites are approximately 9 acres in total size and are not completely impervious. Accordingly, the proposed project will not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

XVIId. Water will be obtained from existing entitlements to California Aqueduct water, and no new entitlements will be required.

XVIIe. See XVIIb.

XVIIf. The project will generate a small quantity of solid waste approximately 40 cubic yards during project activities at each site; however, solid waste will be disposed of according to applicable federal, state and local regulations. Aera-owned facilities currently exist to process drilling and completion wastes and the minimal amount of waste generated will not exceed capacity of the local waste disposal facilities.

Conclusion: No Impact.

Certification

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this initial evaluation to the best of my ability, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date_____Signature _____

ENVIRONMENTAL DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. _____

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A **MITIGATED NEGATIVE DECLARATION** will be prepared. *Attach Mitigation Measures & Monitoring Program.* ___X___

I find that the proposed project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. _____

I find that the proposed project MAY have a significant effect on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed. _____

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. _____

Signature:_____ Date: _____
State Oil and Gas Supervisor

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